

<심포지움 III>

HEMOCYTIC IMMUNE REACTION OF *BLATTELLA GERMANICA* (L.)  
(DICTYOPTERA: BLATTELLIDAE).

S. S. Han

Department of Agricultural biology, Korea University

The granulocyte (GR) is discoid and contains marginal microtubule bundle in its plane of flattening. Following implantation of a foreign tissue (xenogeneic nerve cord and surgical suture), the GRs become activated and show considerable increase in the number of both the microtubules and the nuclear pores of the nuclear envelope. The large of number microtubules is necessary to maintain the flattened nature of the GRs against the deforming and shearing forces of the foreign tissue. The concomitant increase in the number of nuclear pores indicates high turnover of the tubulin pool in the GR cytoplasm, necessary for the rapid assembly of the microtubules in the encapsulating GRs. The latter also form desmosome-like-, intermediate-, B-type gap-, and pleated septate junctions among them, the latter type demonstrated for the first time by both thin section and freeze-fracture methods. The encapsulating GRs constitute a separate subpopulation of immunocytes and differentiate in the hemopoietic tissue (part of the dorsal diaphragm near the heart) located between the abdominal segments 1-4.

Ultrastructures of quick freezing and freeze-substituted immunocytes (subtype I) was presented here. Microfilaments just beneath the plasma membrane, and nail-like electron-dense fibers were newly founded.

The MB was found in the subtype I by LyM treatment, disappearing at 0°C. After the immunocytes had been rewarmed for several hours, continuous MBs with associated MTOC were reassembled. MTOC participated in MB assembly and reassembly. The results suggest a model in which MTOC, triplets centrioles, assembly and growth of microtubules in diverging directions around the cell periphery. MB of opposite polarities meet and pass one another at the end of the cell opposite the MTOC.

After LyM treatment and incubation at 0°C, the cell organelles including MB had disappeared from most of the immunocytes, but SAC remained. In whole mount, the SAC appeared as a rough network spanning the space between nucleus and MB. In this section of SAC, fine fibrillar material were found.

Using concanavain A (Con A), wheat germ agglutinin (WGA), and soybean agglutinin (SBA), three lectin-binding receptor molecules have been recognized on the plasma membrane of plasmatocyte and granulocyte of last larval stage and immunized larva by injuring of *Helothis assulta*.

Con A, WGA, and SBA caused the strong patching of surface receptors on that of granulocyte. During induction of antimicrobial peptides, their patching on the membrane was disappeared gradually and changed into general fluorescence with extremely weak binding receptors.

In plasmacyte, Con A and SBA were a little or little changes from extremely weak or fluorescence during induction. Only WGA-binding receptors on the membrane were increased and became bright as patching, and showed to peak FITC-binding at 24 hour after induction.

On the basis of the known function of WGA-binding receptors molecules, plasmacytes may play a role of non-self recognition.